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On the identity of *Ourapteryx ebuleata* GUENEE, 1857, *O. multistrigaria* WALKER, 1866, and *O. caschmirensis* BASTELBERGER, 1911, with description of two new species (Lepidoptera: Geometridae, Ennominae)

by

Dieter STÜNING

Abstract: *Ourapteryx ebuleata* GUENEE, *O. caschmirensis* BASTELBERGER, and *O. multistrigaria* WALKER are redescribed and redefined, based on the type-specimens. *O. multistrigaria* is revived as distinct species, and a lectotype is designated for *O. caschmirensis* BASTELBERGER. Two new species, ***O. postflavata* sp. n.** and ***O. pallistrigaria* sp. n.**, are described from Nepal and NE India (holotypes in Munich and Bonn). Diagnostic characters for all species are provided.

Zur Identität von *Ourapteryx ebuleata* GUENEE 1857, *O. multistrigaria* WALKER 1866 und *O. caschmirensis* BASTELBERGER 1911 nebst Beschreibung zweier neuer Arten (Lepidoptera: Geometridae, Ennominae)

Zusammenfassung: *Ourapteryx ebuleata* GUENEE, *O. caschmirensis* BASTELBERGER und *O. multistrigaria* WALKER werden auf der Basis des Typenmaterials neu beschrieben und definiert. *O. multistrigaria* wird als distinkte Art aus der Synonymie genommen, und für *O. caschmirensis* wird ein Lectotypus festgelegt. Zwei neue *Ourapteryx*-Arten, ***O. postflavata* sp. n.** und ***O. pallistrigaria* sp. n.**, werden aus Nepal und Nordostindien beschrieben (Holotypen in München und Bonn). Für alle Arten werden Differentialmerkmale angegeben.

Introduction

The genus *Ourapteryx* LEACH, 1814, represented in Central Europe only by a single species – the type-species of the genus, *O. sambucaria* LINNAEUS, 1758 – comes up to a high species richness in East and South East Asia. From Taiwan, for example, INOUE (1985) described

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six new species which brought the total number of *Ourapteryx* species known from this rather small area up to 15. On the contrary, the knowledge about continental Chinese *Ourapteryx* taxa is still very poor but an average number of 30 species can be expected. Six species are recorded from Japan, a number that will not change dramatically, as the moth fauna of this country has been studied most thoroughly (INOUE 1977, INOUE et al. 1982). 11 species are known from Thailand so far, 6 out of this number being described just recently (INOUE 1993 b). But the number of nominal taxa of the genus *Ourapteryx* LEACH will again increase considerably in near future (INOUE, pers. comm.). The ample material of that genus collected during the last decade, predominantly since 1989, in Nepal (leg. HARUTA et al.), is presently being studied by the abovementioned author and the results will be published still in 1994. Furthermore, the *Ourapteryx* species inhabiting the Indonesian islands and the Philippines are also poorly known and partly undescribed.

One of the most serious problems concerning the taxonomy of the genus *Ourapteryx* – especially if material from N. India or Nepal (Himalaya) is involved – is the identity of *O. ebuleata* GUENEE, 1857. This species currently is considered to be the most abundant, most widespread Asian *Ourapteryx* species, split into a number of subspecies and occuring from W. Asia to China. OBERTHÜR (1911: 27), who had the holotype of *ebuleata* at hand, suspected already that most of the taxa treated as synonyms might prove to be distinct. But the successing authors – including WEHRLI (1939) – more or less stuck to the former treatment. The latter author added two new subspecies from China to the long list of subspecies of *ebuleata* which – like all other subspecies described before – have proved to be distinct species (partly unpublished information). INOUE (1985) who compared some of the new species which he described from Taiwan to *"O. ebuleata"*, relied on material which he had received from the British Museum (Natural History), London, determined as *O. ebuleata*. This also was misidentified, caused by the fact that *O. multistrigaria* WALKER (type in BMNH) was treated as a junior synonym of *O. ebuleata* (HAMPSON 1895, SWINHOE 1900, PROUT 1915). *O. multistrigaria* WALKER, **spec. rev.,** however, is a distinct species, clearly separated from *ebuleata*. Moreover, the material which INOUE received as *ebuleata* (origin: NE India) did not even belong to *multistrigaria,* it represents another new, externally very similar species, the eastern sister-species of

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multistrigaria. It will be described in the course of INOUE's contribution to "Moths of Nepal, Part IV".

The abovementioned confusion was clearly caused by an unexpected species richness, hidden behind an extreme external similarity, especially in the *ebuleata*-group, and also by lack of sufficient material. Besides, some important morphological characters have been ignored so far, e.g., in the male the presence or absence of a setal comb or a sterno-tympanal process and/or the structure and configuration of cornuti on the everted vesica. In the female genitalia, the natural shape of the bursa copulatrix is very distinctive and has not been used for taxonomic purposes so far. Another important fact has also been widely neglected: the deciduous cornuti of the male vesica are frequently found in the female bursa copulatrix. In many cases they can provide additional information about the identity of specimens and the correct combination of sexes.

Abbreviations

BMNH The Natural History Museum, London
NSMT Natural Science Museum, Tokyo
SNG Senckenberg-Museum, Frankfurt am Main
ZFMK Zoologisches Forschungsinstitut und Museum Alexander Koenig, Bonn
ZSM Zoologische Staatssammlung, München

lam. ant. lamella antevaginalis
lam. post. lamella postvaginalis

Systematic part

Ourapteryx ebuleata GUENEE 1857 (Figs. 1–6, 19)

Urapteryx [sic] *ebuleata* GUENEE, 1857, Hist. nat. Insectes, Spec. Gén. Lépid. **9:** 32
Locus typicus: "Bengale, Cachemire"

Material examined
Holotype, ♀, "Inde nord" – "Typicum Specimen" – "Ex Musaeo Ach. Guenée" – "ZFMK Genitalpräp. Nr. 1411" [in coll. ZFMK].
[The abdomen of the holotype, broken off at some time or other in the past, pinned separately for some time, now was found glued to the thorax. Nevertheless, there is only little doubt that it is the original abdomen, the genitalia fitting quite well to those of other females considered conspecific.]

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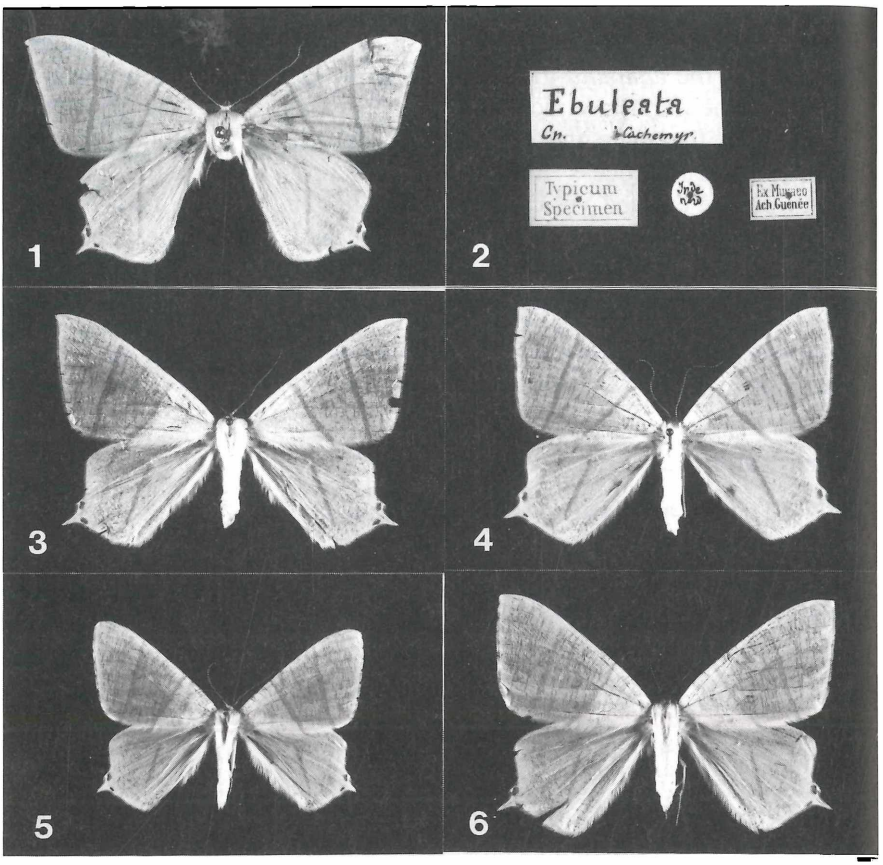

Figs. 1–6: *Ourapteryx ebuleata* GUENEE. **Fig. 1:** holotype, ♀; **Fig. 2:** labels of holotype; **Fig. 3:** ♀, Pakistan, Kohistan; **Fig. 4:** ♀, Punjab, Simla; **Fig. 5:** ♂, E. Nepal, Jiri; **Fig. 6:** ♀, same locality.

Further material. 1 ♀, "Pakistan, Kohistan, Swat prov., 72.32 E/35.10 N, Miandam, 1800 m, 25. June–5. July 1992, lgt. Z. WEIDENHOFFER" [ZFMK]; 2 ♀♀, "Kaschmir, bei Nathia Gali, 26. VII. 1973, 2700 m, leg. N. FLAUGER" [coll. HERBULOT]; 1 ♂, "Berg Kufri, HimalayaGbg., Simla, Punjab"; 3 ♂♂, 3 ♀♀, "Punjab, Simla, Himalaya m. occ., 2500 m, Juli"; 1 ♀, id., August; 1 ♂, "Nepal, Kathmandu Valley, Godavari, Phulchoki 2700 m, 25.–26. V. 1989, leg. H. SCHNITZLER"; 2 ♂♂, 1 ♀, "E. Nepal, Jiri,

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2200 m, 2. VI. 1992, leg. H. SCHNITZLER"; 4 ♂♂, 1 ♀, Nepal, Ganesh Himal, Syabrubesi, 1520 m, 12. VI. 1993, leg. M. HREBLAY, G. CSORBA"; 5 ♂♂, 1 ♀, "Nepal, Ganesh Himal, 3 km NE of Sunpati, 2330 m, 13. VI. 1993, leg. M. HREBLAY, G. CSORBA" [ZFMK]; 1 ♂, same data [coll. SOMMERER]; 1 ♂, "Nepal, Helmu-Gebiet, Gusum Banyang 2600 m, 1. IX. 1967, leg. DIERL"; 1 ♂, id., 3. IX.; 1 ♂, id., 5. IX.; 1 ♀, id., 4. IX. [ZSM].

Description. Length of forewing: 30 mm (holotype ♀), 24–27 mm (♂♂), 26–29.5 mm (♀♀). Ground colour dull white, sometimes with a very faint brownish (type and specimens from Punjab) or yellowish (specimens from Nepal) tinge. Transverse lines grey to brownish grey, discoidal streak very faint, concolorous with lines. Fringe greyish-brown to greyish-yellow in forewings, ochreous in hindwings. Tails of hindwing (fig. 19) short, pointed at tip, lined with ochreous scales, except on "shoulder" (i.e. where vein M1 meets the margin) and at tip. Basal spots set well apart, not connected by band of grey scales; anterior spot red, thickly lined with black scales, posterior spot small, black, streak-like, only very rarely with some red scales (except Nepalese specimens which all have also the second spot distinctly red). Thorax, abdomen and vertex of head as groundcolour, face (frons) white, with the upper half or less greyish-brown, palpi predominantly white, dusted brownish on the outside. Antennae simple in both sexes, filiform, very shortly pubescent, ochreous. Tibia of hindlegs dilated in males, with whitish brush of scent-scales. Setal comb on sternite 3 of abdomen present, sterno-tympanal process well developed.

Male genitalia (Figs. 23, 29). Furca long and slender, distal half first bent dorsally, then recurved towards base. Vesica with numerous deciduous spines, the smaller ones situated on a long, acutely triangular, sclerotized plate. At least a part of the cornuti somewhat knotty.

Female genitalia (Fig. 33). Bursa copulatrix oval, signum oval, very rarely the anterior margin slightly excavated. Ductus bursae moderately thick, Antrum triangularly prolonged towards ostium. Lamella antevaginalis asymmetric, high close to the ostium, tapering towards opposite end. Lamella postvaginalis very high, excavate at middle in type. The shape of the lamellae is variable to some extent.

Variability. *O. ebuleata* is a variable species with regard to the wing-shape and the ground colour. In the female holotype (exact origin unknown), the termen of the forewings is straight, almost slightly concave, the apex a little falcate. This feature is found even more expressed in a female from N. Pakistan. Specimens from Punjab and

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Nepal have the termen slightly convex, those from Nepal also differing in the groundcolour being faintly dull greenish-yellow.

As it looks now, *O. ebuleata* should probably be separated into 3 subspecies, embracing: a) populations from Pakistan & Kashmir (nominal), b) from Punjab, and c) from Nepal. Populations from Nepal seem to be externally quite distinct and geographically isolated; as for the former two, more material should be available before describing new taxa.

Diagnosis. *O. ebuleata* has the ground colour white or very slightly dull greenish-yellow, the basal spots of HW tails are not connected by a band of grey scales. This latter feature is – for the species treated in this paper – also characteristic for *O. caschmirensis* which is considerably larger and pure white, sometimes with a small yellowish area close to the tails of the hindwing. It is less striated, especially close to the costa in forewing. The fringe is contrastingly reddish in *caschmirensis,* especially in the hindwings. *O. ebuleata* can also be confused with *O. multistrigaria,* as has happenend very often in the past. *O. multistrigaria* is always, at least slightly, yellowish and has the spots at the base of the tails of the hindwings connected by a greyish band (which may be interrupted, however).

In the male genitalia the long, perfectly recurved distal part of the slender furca, the long, acutely triangular, sclerotized vesica plate and the knotty cornuti are diagnostic for *ebuleata;* both, *caschmirensis* and *multistrigaria,* have a much shorter part of the furca incurved. In the female, the asymmetrical lam. ant. as well as the triangular sclerotization of the antrum are diagnostic features.

Geographical range. N. Pakistan, NW. India (Kashmir, Punjab), Nepal.

Remarks. *O. ebuleata* GN. has been considered as the most abundant and most widespread East Asian *Ourapteryx* species thus far, and some taxa, like *O. multistrigaria* WALKER, *O. kantalaria* FLDR. & RGHFR. and *O. yerburii* BUTLER, known to be distinct species now, have been treated as synonyms. PROUT (1915: 335), under the name of *ebuleata,* provided a detailed description of *O. multistrigaria.* Furthermore, all taxa described as subspecies of *ebuleata* have proved to be either independent species or belong to other taxa. In fact, *ebuleata* seems to be a not very abundant, predominantly upper montane species. No records are known to the author from Kumaon (Naini Tal, Bhim Tal, 1600 m) where extensive collecting took place during the last years, or from the Sikkim/Darjeeling area thus far. The populations from E.

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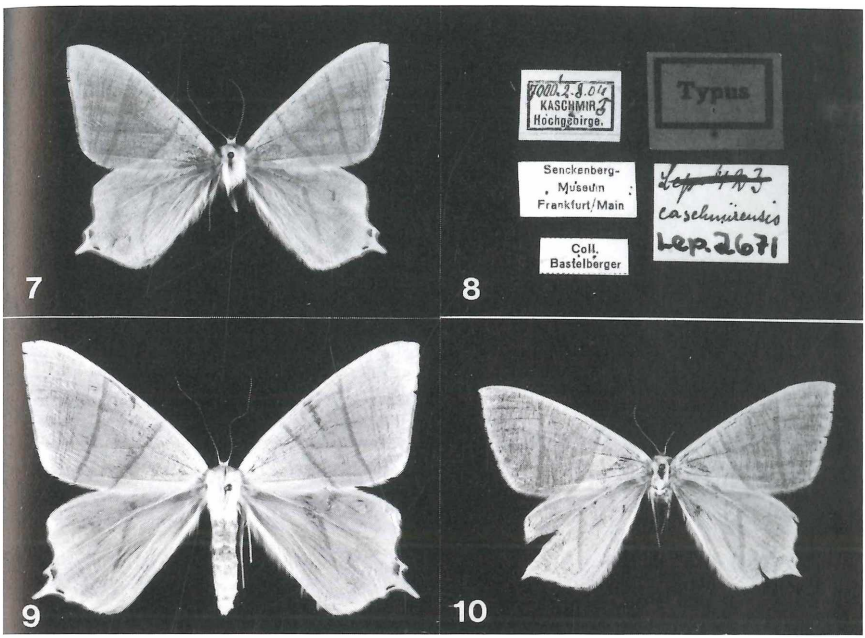
Nepal are isolated and should be separated as a subspecies in future. Older records of *"O. ebuleata"* from localities east of Nepal are mostly referable to the occurence of the undescribed sister-species of *O. multistrigaria* mentioned above or to the very similar *O. consociata* INOUE, 1993, which is genitalically clearly distinct in both sexes.



Figs. 7–9: *Ourapteryx caschmirensis* BASTELBERGER. **Fig. 7:** ♂, lectotype; **Fig. 8:** labels of lectotype; **Fig. 9:** ♀, Kaschmir, Bandipur. **Fig. 10:** *Ourapteryx kantalaria* FELDER & ROGENHOFER (♀, paralectotype of *O. caschmirensis*).

Ourapteryx caschmirensis BASTELBERGER 1911 (Figs. 7–9, 20)

Ourapteryx caschmirensis BASTELBERGER, 1911, Int. Entomol. Z. (Guben) **5:** 157.

Material examined.

Lectotype, ♂, **designated here,** labelled: "7.000', 2.08.[19]04, Kaschmir, ♂, Hochgebirge"; "Typus"; "Senckenberg-Museum, Frankfurt/Main"; "Coll. BASTELBERGER"; "caschmirensis Lep. 2671"; gen. prep. "Senck-1"/INOUE [in coll. Senckenberg].

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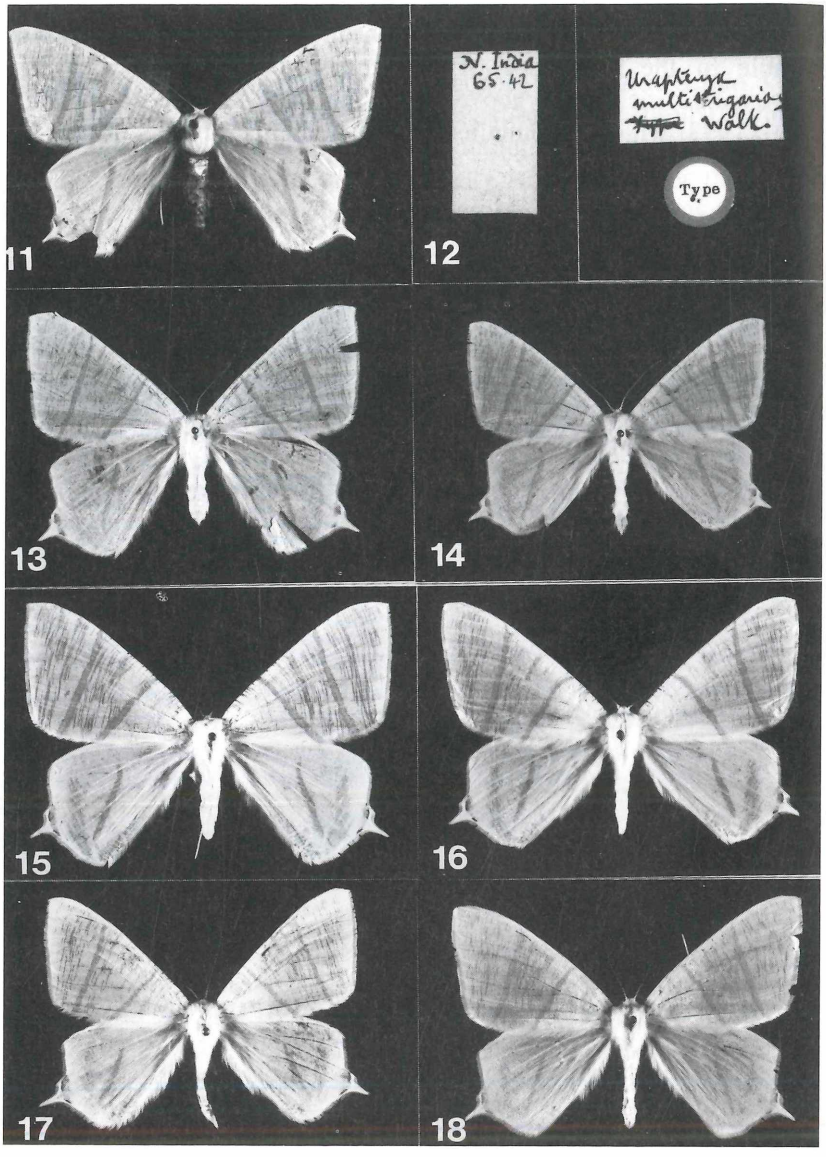

Figs. 11–14: *Ourapteryx multistrigaria* WALKER. **Fig. 11:** holotype, ♀; **Fig. 12:** labels of holotype; **Fig. 13:** ♀, Punjab, Simla; **Fig. 14:** ♂, same locality. **Figs. 15, 16:** *Ourapteryx pallistrigaria* sp. n. **Fig. 15:** ♀, paratype; **Fig. 16:** ♂, holotype (E. Nepal). **Figs. 17, 18:** *Ourapteryx postflavata* sp. n. **Fig. 17:** ♂, holotype (E. Nepal); **Fig. 18:** ♂, paratype (Sikkim).

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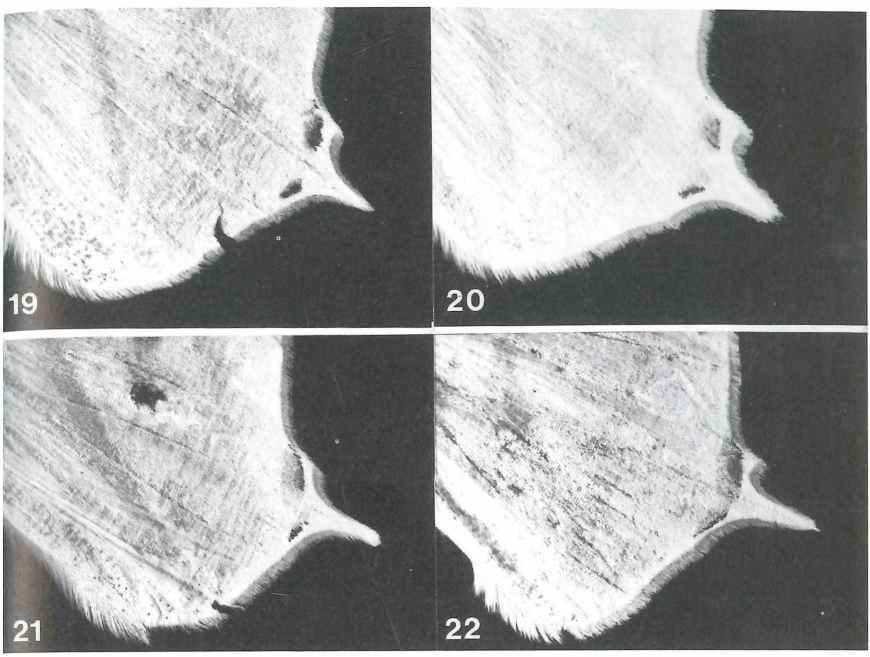

Figs. 19–22: *Ourapteryx* spp., right hindwing. **Fig. 19:** *O. ebuleata,* holotype; **Fig. 20:** *O. caschmirensis,* lectotype; Fig. 21: *O. multistrigaria,* holotype; **Fig. 22:** *O. postflavata* sp. n., paratype.

Paralectotypes: ♂, same locality, 27. VIII. [19]04; gen. prep. "Senck-2"/INOUE; ♀, same locality, 23. VIII. [19]04; gen. prep. "Senck-3"/INOUE [coll. Senckenberg].
[The female paralectotype (Fig. 10) is not conspecific with *O. caschmirensis* BAST. but belongs to *O. kantalaria* FELDER & ROGENHOFER 1875, **spec. rev.** Details on this species will be recorded in another paper presently prepared by INOUE.]

Further material: Pakistan. 4 ♂♂, 1 ♀, "NO-Pakistan, Nathia Gali, 2400 m, 27.–30. VI. 1975, leg. W. THOMAS"; 2 ♀♀, id., 20.–23. VII. 1975; 1 ♀, id., 2700 m, leg. FLAUGER, 1. VII. 1973; 1 ♀, id., 26. VII.; 2 ♂♂, id., 3. VIII.; 1 ♂, id., 24. VIII.; 1 ♂, "N-Pakistan, Shogran, 3000 m, 11. VIII. 1974, leg. FLAUGER" [coll. SOMMERER].
NW. India. 1 ♂, 1 ♀, "Indien, Jammu & Kaschmir, Bandipur, 2200 m, 5. VII. 1987, leg. W. THOMAS"; 1 ♂, "Indien, Jammu & Kaschmir, Srinagar, 1700 m, 30. VII. 1987,

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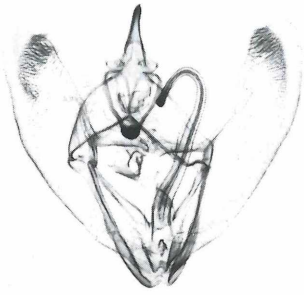

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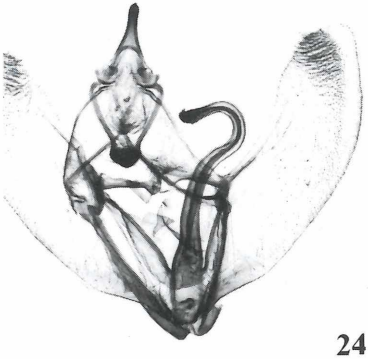

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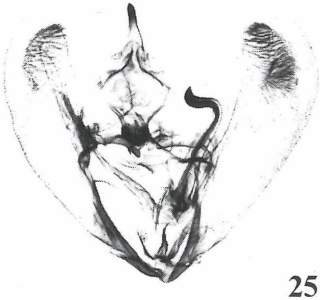

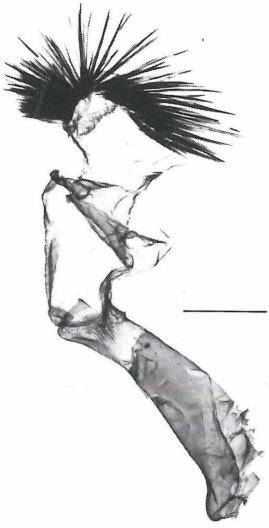

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Figs. 23–25: Legend see at right.

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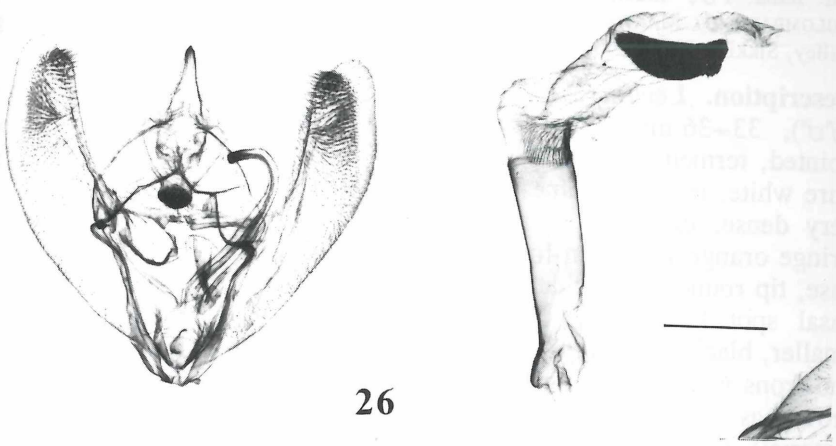

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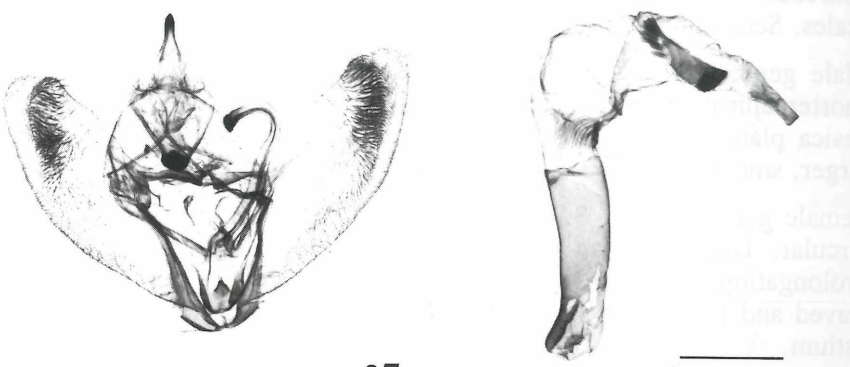

27

Figs. 23–27: Male genitalia of *Ourapteryx* spp., aedeagus at right, with everted vesica. **Fig. 23:** *O. ebuleata* (complete set of cornuti); **Fig. 24:** *O. caschmirensis* (most cornuti lost); **Fig. 25:** *O. multistrigaria* (cornuti complete); **Fig. 26:** *O. pallistrigaria* sp. n. (cornuti complete); **Fig. 27:** *O. postflavata* sp. n. (most cornuti lost). Scale bar indicates 1 mm.

leg. W. THOMAS"; 4 ♂♂, 2 ♀♀, "Punjab, Simla, Himalaya m. occ., 2500 m, Juli" [ZFMK].

Nepal. 1 ♂, "W. Nepal, Karnali, Jumla Distr., Jillya, 2690 m, 29. IX. 1981 (M. OWADA)" [NSMT]; 1 ♀, "C. Nepal, Kali-Gandaki-Tal, Choklopani nördl. Tukche, 2600 m, 17. VI. 1973, leg. DIERL-LEHMANN"; 3 ♂♂, id., 21., 23. & 25. VI. [ZSM].

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NE. India. 1 ♂, "India, West Bengal, Kurseong, alt. 1475 m, 7.–22. IV. 1988 (F. AULOMBARD, J. MARTIN et J. PLANTE) [BMNH, ex coll. INOUE]; 1 ♂, "Lachung Valley, Sikkim, Juli/Aug." [ZFMK].

Description. Length of forewing: 30 mm (lectotype ♂), 28–33 mm (♂♂), 33–36 mm (♀♀). Large species. Forewings elongate, apex pointed, termen oblique in males (less so in females). Ground colour pure white, transverse lines broad, grey. Striation variable, mostly not very dense, especially costal region of forewings almost unstriated. Fringe orange-yellow in forewing, reddish in hindwing. Tails broad at base, tip rounded, shoulder at end of M1 pronounced, angled. Anterior basal spot large, red, edged with black interiorly, posterior spot smaller, black, not connected by a grey band. Thorax, abdomen, vertex and frons white, the latter with a narrow greyish-brown band (not red-brown, as indicated by Bastelberger 1911: 157, not even in rather fresh material). Palpi white, dusted with brown on outside, antennae filiform, ochreous. Tibia of hindlegs dilated, with a whitish brush of scent-scales. Setal comb on sternite 3 and sterno-tympanal process present.

Male genitalia (Figs. 24, 28). Considerably larger than *ebuleata*. A shorter apical portion of furca strongly bent and recurved. Shape of vesica plate as in *ebuleata,* arrangement of cornuti similar, the latter larger, smooth.

Female genitalia (Fig. 34). Bursa heart-shaped (ventral view), signum circular. Ductus bursae moderately thick, antrum without triangular prolongation. Lamellae ante- and postvaginalis very large, the latter waved and folded, with a strong, oblique ridge from left side towards ostium.

Variability. Not very variable. Striation can be more or less pronounced. Some specimens have the area close to the tails of the hindwings slightly yellowish instead of white. Three specimens from C. Nepal, however, have the ground colour completely yellowish and may represent a local race.

Diagnosis. Size, white ground colour, wingshape and reddish hindwing margins render this species almost unmistakable. The male genitalia are similar to those of *ebuleta,* but much larger, the furca more robust and not so distinctly recurved. In the female the shape of the lamella postvaginalis is diagnostic.

Geographical range. N. Pakistan, NW. India (Jammu & Kashmir, Himachal Pradesh), W. & C.Nepal, Sikkim/Darjeeling.

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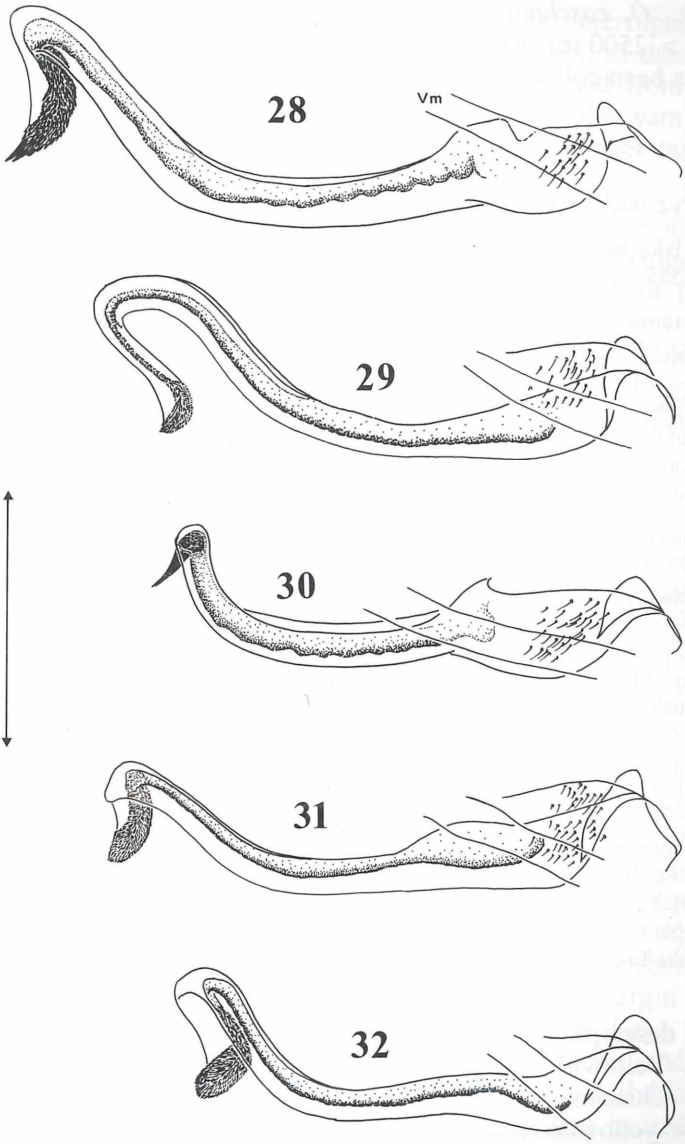

Figs. 28–32: Male genitalia of *Ourapteryx* spp., furca (lateral/right view). **Fig. 28:** *O. caschmirensis;* **Fig. 29:** *O. ebuleata;* **Fig. 30:** *O. multistrigaria;* **Fig. 31:** *O. pallistrigaria* sp. n.; **Fig. 32:** *O. postflavata* sp. n.
Vm: position of vinculum. Scale bar indicates 1 mm.

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Remarks. *O. caschmirensis* BAST. is a predominantly upper montane species (> 2500 m), except specimens from Sikkim/Darjeeling one of which has been collected at 1475 m.

Ourapteryx multistrigaria WALKER 1866, **spec. rev.** (Figs. 11–14, 21)

Urapteryx [sic] *multistrigaria* WALKER, 1866, List Specimens lepid. insects coll. Br. Mus. **35:** 1535

Material examined

Holotype, ♀, "N. India, 65.42" – "*Urapteryx multistrigaria* WALK., type" [backside of same label: "type" crossed out]; "Type"; gen. prep. no. 1953-DS [abdomen glued to the thorax] [in coll. BMNH].

[It could not be elucidated why the word "type" has been crossed out on the label. The above specimen is almost certainly the one WALKER had at hand and his description – based on one female only – fits exactly; therefore it is considered to be the holotype.]

Further material. 1 ♂, "NW-Pakistan, 20 km W of Besham, Karaora, 1200 m, 34°53'N, 72°47'E, Nr. 4, 27. V. 1992, leg. M. HREBLAY, G. CSORBA"; 1 ♀, "Pakistan, Kohistan, Swat prov., 35°10'N, 72°32'E, Miandam 1800 m, 25. June–5. July 1992, lgt. Z. WEIDENHOFFER"; 2 ♀♀, "Indien, Himachal Pradesh, Lag Valley NW Kulu, 31°59'N, 77°02'E, 1500 m, 23. X. 1990, leg. H. HACKER"; 1 ♂, "India sept. occ., Dehra Dun, Mussoorie, 2000 m, 3.–12. Mai"; 1 ♀, "Berg Kufri, Himalaya-Gbg., Simla, Punjab, 2500 m"; 3 ♂♂, 2 ♀♀, "Punjab, Simla, Himalaya m. occ., 2500 m, Juli"; 2 ♂♂, "N-Indien, Uttar Pradesh, Kumaon Himalaya, Distr. Nainital, Bhimtal 1500 m, 15.–30. V. 1990, leg. A. HAUENSTEIN"; 1 ♀, same data, H. SPEIDEL leg. [ZFMK]. 1 ♂, "India sept., Kumaon, Bhimtal, ca. 1800 m, 16. IX. 1961, leg. F. SMETACEK"; 1 ♂, same locality and collector, 1500 m, 24. IX. 1971; 1 ♂, id., 29. IX.; 1 ♂, same locality, 1450 m, 2. IX. 1973, leg. St. RICHTER; 1 ♀, id., 16. IX. 1973, leg. F. SMETACEK; 1 ♂, "Nepal, Tukucha, 28°43' n. Br., 83°39' ö. L., Dana, 1420 m, 13. IX. [19]55, leg. F. LOBBICHLER", gen. prep. no. G 57; 1 ♀, "C-Nepal, Kyumnu-Khola-Tal bei Gandrung, 2360 m, 24. V. 1973, leg. DIERL-LEHMANN"; 1 ♀, "C-Nepal, Kali-Gandaki-Tal, Kalopani Dhumpu, 2500 m, 3. VI. 1973, leg. DIERL-LEHMANN" [ZSM].

Original description (WALKER 1866: 1535/36):

"Female. Yellowish white. Wings with a yellowish cinereous fringe, which is ochraceous at the base. Fore wings acute, with very numerous transverse yellowish cinereous streaks and with two narrow yellowish cinereous bands; first band antemedial, nearly straight; second postmedial, very slightly curved inward; exterior border straight, slightly oblique. Hind wings caudate; a narrow band, which is abbreviated at each end; numerous minute streaks beyond the band; numerous points along the interior border; two little black streaks, one

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on each side of the acute tail, the fore streak interrupted by an elongated bright red point. Length of the body 9 lines; of the wings 28 lines. – Distinguished from *U.* [sic] *picticaudata* and from *U.* [sic] *sciticaudata* by the numerous transverse streaks, by the want of black marks on the costa on the fore wings, and by the longer tails of the hind wings."

The following features, not mentioned in WALKER's description, have to be added: Male similar to female, but smaller, forewings slightly narrower, the outer margin a bit more oblique. Length of forewing: 28.5 mm (holotype ♀), 24–27 mm (♂♂), 25–29 mm (♀♀). Thorax, patagia and vertex concolorous with the wings (yellowish white). The frons is lightly greyish brown on the upper half or more, whitish beneath (in the type the frons is largely descaled, but the remaining few scales are of the abovementioned colours). The palpi are whitish, dusted with greyish brown outside. Hind-tibia of males dilated, enfolding a whitish scent pencil, transverse comb of setae on 3rd abdominal sternite and a sterno-tympanal process present.

Male genitalia (Figs. 25, 30). Distal part of furca bent medially, the tip being acute. Vesica with a row of long (> 1 mm), thick cornuti, the largest being compound (with some smaller spines branching off laterally), and a smaller group of numerous shorter, almost hairlike spines on a narrow, transverse plate.

Female genitalia (Fig. 35). Bursa oval, signum large, with the anterior margin broad and excavate. Ductus bursae rather narrow, densely fluted and sclerotized except close to the antrum, the latter not triangularly prolonged. Lam. ant. small, more or less semicircular, not or just reaching the ostium, more or less evenly rounded. Lam. post. larger, the oblique ridges more or less pronounced. Apophyses anteriores short. Genitalia of the type specimen somewhat aberrant, the signum being rather oval than reniform, the anterior margin scarcely broadened, the ridges on the lam. post. extremely large and the apophyses ant. almost reduced. Shape of bursa, ductus and cornuti inside of the bursa indicate, however, that 1) the glued abdomen very probably is the original one and 2) the other material treated here is conspecific with the type.

Variability. There is some variability in the ground colour being more or less yellowish. Some almost white specimens are known from the western part of the geographical range. Also the striation can be more or less pronounced.

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Diagnosis. Very similar to yellowish specimens of *ebuleata* from E. Nepal. Specimens of *ebuleata,* however, are rather dull greenish-yellow and less striated, the surface of the wings of *multistrigaria* being slightly shining. A rather distinctive feature is the band of grey scales which connects the spots at the base of the tails of the hindwings; this is neither seen in *ebuleata* nor in *caschmirensis*.
O. multistrigaria is also very similar to *O. pallistrigaria* sp. n. The latter is a larger species, with blackish striation along the forewing costa, which is much weaker in *multistrigaria*. *O. pallistrigaria* has the frons and the palpi dark brown throughout, while in *multistrigaria* the frons is greyish-brown in the upper half, whitish beneath, the palpi are also whitish, only dusted with greyish-brown on the outer surface. The antennae are brownish, in *pallistrigaria* blackish.
In the male genitalia the furca is somewhat similar in both species, but size and arrangement of the cornuti are distinctive (Figs. 25, 26). *O. multistrigaria* is most similar – externally indistinguishable – from its eastern sister-species which is yet undescribed. It differs mainly in the shape of the furca which is almost straight or slightly curved, and in the cornuti which are smaller, the largest having no lateral branches. There are no distinct differences in the female genitalia. This sibling species occurs from E. Nepal and Sikkim/Darjeeling to Assam and S. Myanmar (Burma).

Geographical range. N. Pakistan, NW. India (Himachal Pradesh, Uttar Pradesh), C. Nepal.
[The type-locality is given as "North Hindostan" in the description which excludes only "Bengal" (i.e., the eastern part of India) from its possible origin.]

Remarks. *O. multistrigaria* WALKER has been treated as a junior synonym of *O. ebuleata* GUENEE for a long time (see above). Consequently the externally very similar material from Sikkim and Darjeeling also has been considered as conspecific and thus has been determined as *ebuleata*. INOUE (1985, 1993 b) when comparing some of his new species to *"ebuleata"*, in fact had this taxon at hand. The same author treated *O. multistrigaria* as a distinct species for the first time (INOUE 1987: 270), but the material mentioned under this name turned out to belong to *O. postflavata* sp. n., described below.

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Ourapteryx ***pallistrigaria*** **sp. n.** (Figs. 15, 16)

Holotype, ♂, "Nepal, Prov. Nr. 3 East, Junbesi, 2750 m, 25.–31. VII. 1964, leg. W. DIERL", gen. prep. no. 1955-DS [coll. ZSM].

Paratypes. 8 ♂♂, same data as holotype; 1 ♀, same data as holotype, gen. prep. no. 1956-DS; 1 ♂, id., Sete, 2700 m, 1. VIII. 1964; 3 ♀♀, id., Helmu-Gebiet, Gusum Banjyang, 2600 m, 1. IX. 1964; 2 ♀♀, id., 3. IX. 1967; 1 ♀, id., 5. IX. 1967 [ZSM, ZFMK]. 1 ♂, "Darjeeling, July, 1886, H. J. ELWES", gen. prep. no. 1954-DS [BMNH]. 3 ♂♂, 1 ♀, "Unnamed place between Walunchung & Chowki, 2450 m, 28. VII. 1963" [BMNH, ex coll. INOUE]. 2 ♂♂, 1 ♀, "Darjeeling, F. A. MOLLER" [Zool. Mus. Copenhagen].

Description. Length of forewing 30 mm (holotype ♂), 28–31 mm (♂♂), 29–33 mm (♀♀). Ground colour creamy white, yellowish close to the hindwing tails. Striation variable, stronger than in the next species, especially on the forewing costa and on the hindwings. Lines broad, grey, powdered with yellow. Fringe yellow with blackish basal line in forewing, in hindwing slightly darker, tending to orange. Termen almost straight in females, slightly convex and oblique in males, apex of forewings slightly pointed. Tails strongly shouldered on M1, but the margin less incurved beneath than in the next species. The anterior spot red, bordered with black scales, connected by a grey band with the black, streak-like posterior spot. Underside of wings almost unicolorous, homogeneously yellowish white, the fringe as on upperside. Thorax and abdomen concolorous to the wings; vertex of head, bases of tegulae and some parts ventro-lateral to the head lemon-yellow. Frons and palpi entirely dark brown, antennae scaled blackish dorsally. Tibia of hindlegs dilated, with evertible tuft of scent-scales, setal comb on sternite 3 of abdomen and sterno-tympanal process present.

Male genitalia (Figs. 26, 31). Furca incurved at apex, with rounded tip, vesica with a compact plate which is densely covered with numerous, very short, almost hairlike cornuti, all of the same size. There are no larger cornuti surrounding the plate.

Female genitalia (Fig. 36). Similar to *multistrigaria* in the shape of bursa copulatrix. The signum rather round than oval, with very broad margins, the small, round opening slightly excentric. Ductus less fluted and less sclerotized, strongly bent at base. Lamellae ante- and post-vaginalis as shown in the figure.

Variability. Not variable. Striation may be more or less dense.

Diagnosis. See *O. multistrigaria.*

Geographical range. E. Nepal, NE. India (Sikkim/Darjeeling).

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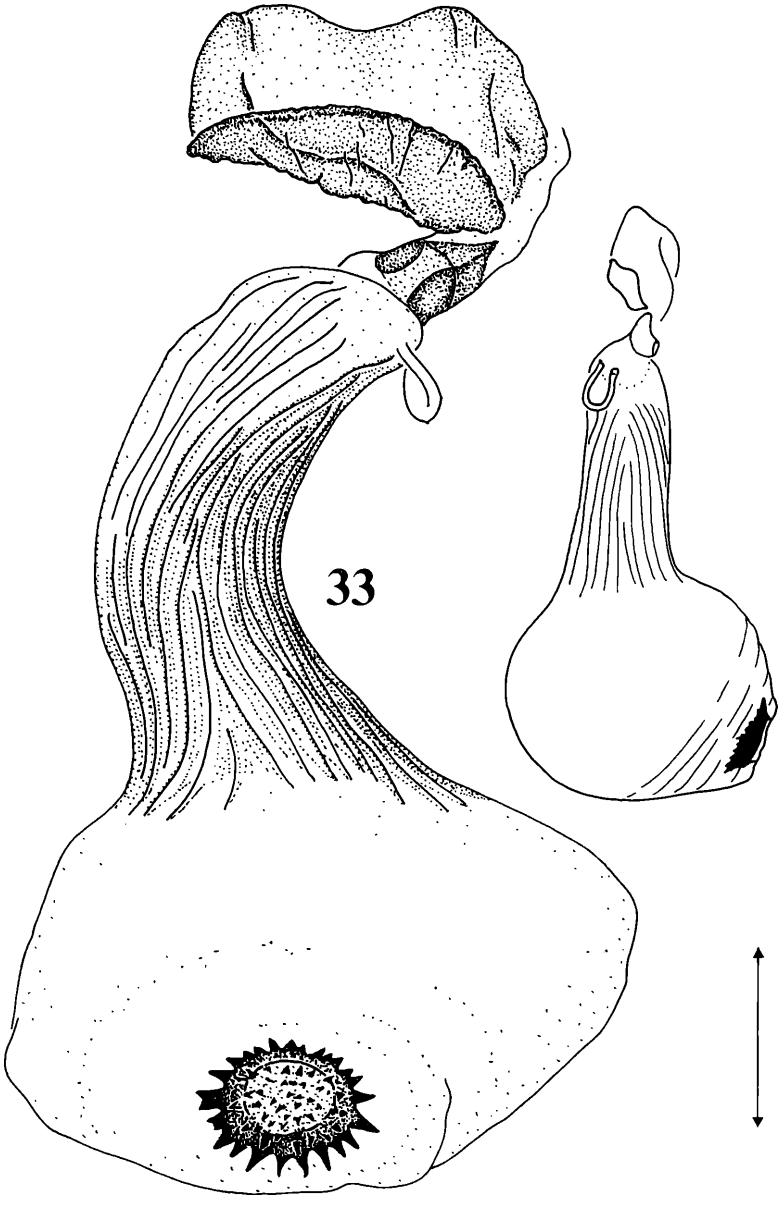

Figs. 33–37: Female genitalia of *Ourapteryx* spp., ventral view (large figure), lateral/right view (half size figure). Scale bar indicates 1 mm for the larger figure, approx. 2 mm for the small figure.
Fig. 33: *O. ebuleata,* holotype ("Inde nord").

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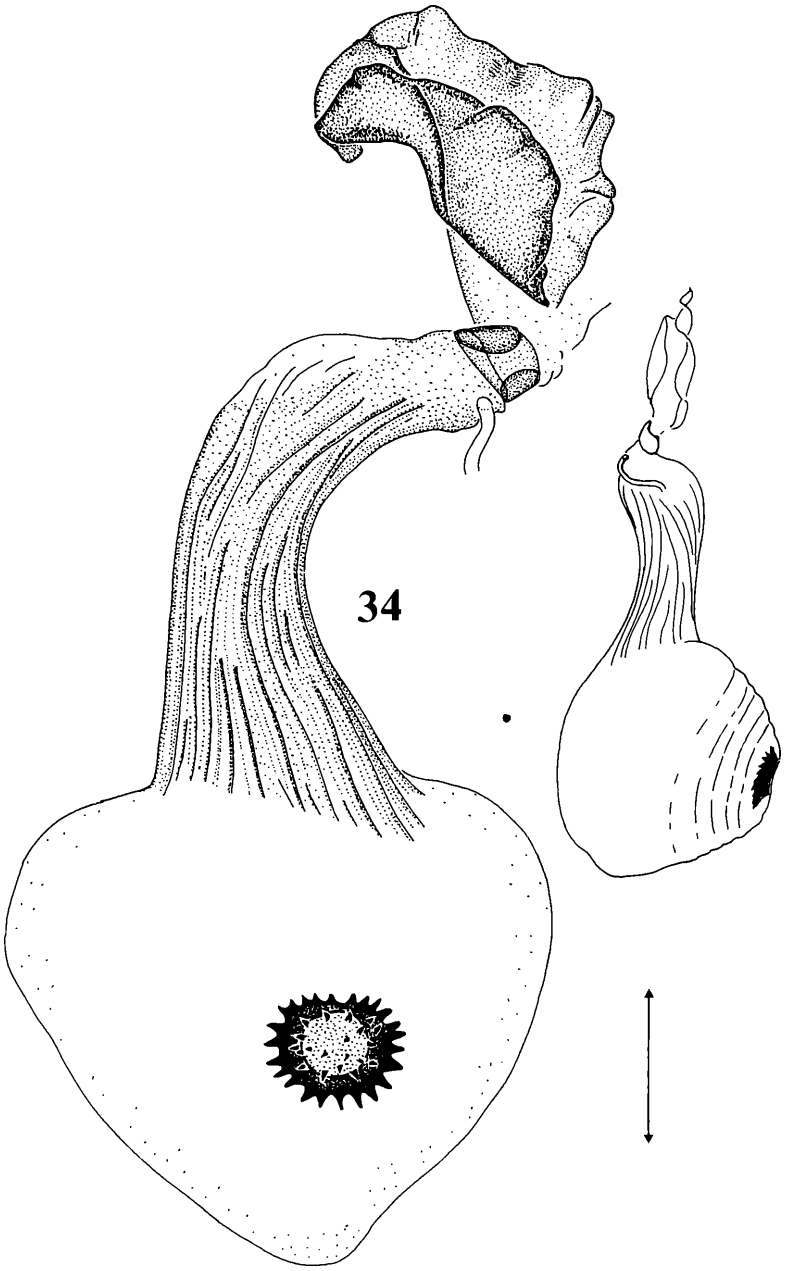

Fig. 34: *O. caschmirensis* (Punjab, Simla).

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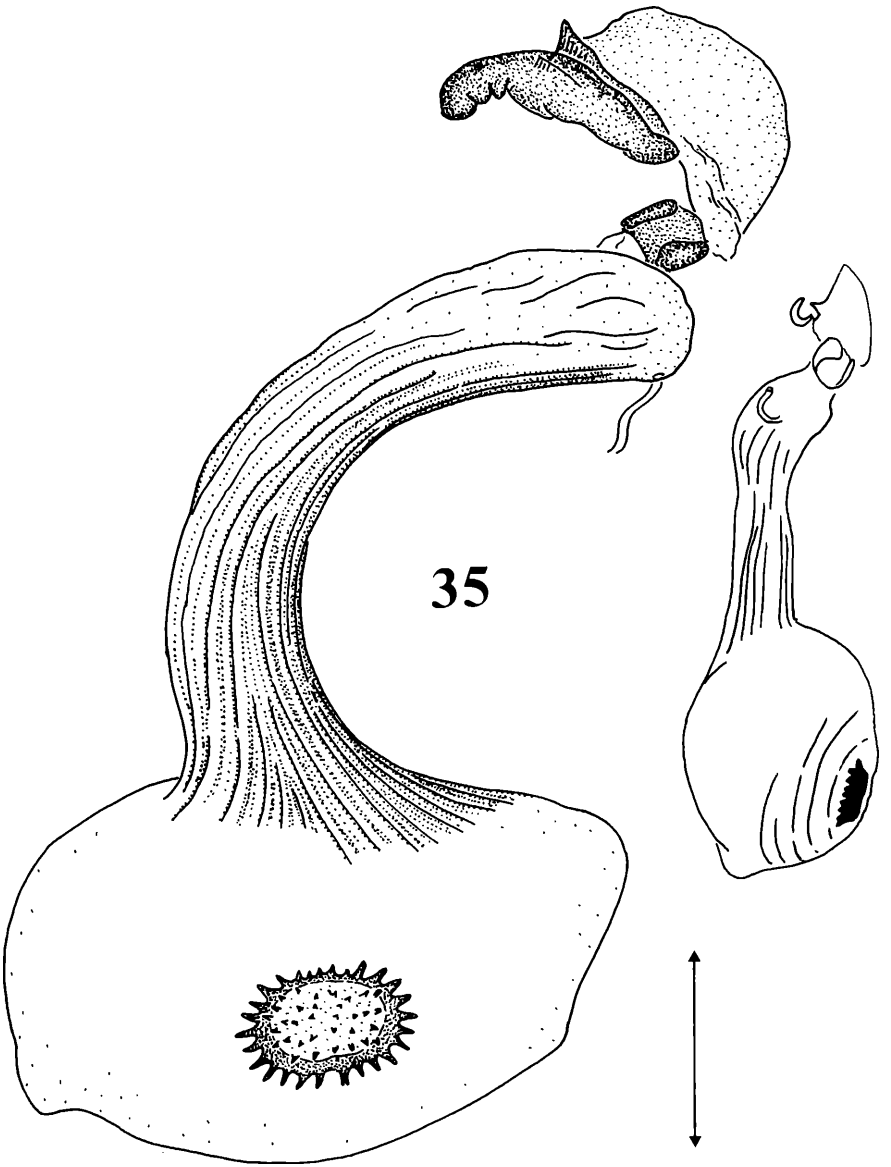

Fig. 35: *O. multistrigaria,* holotype ("N. India").

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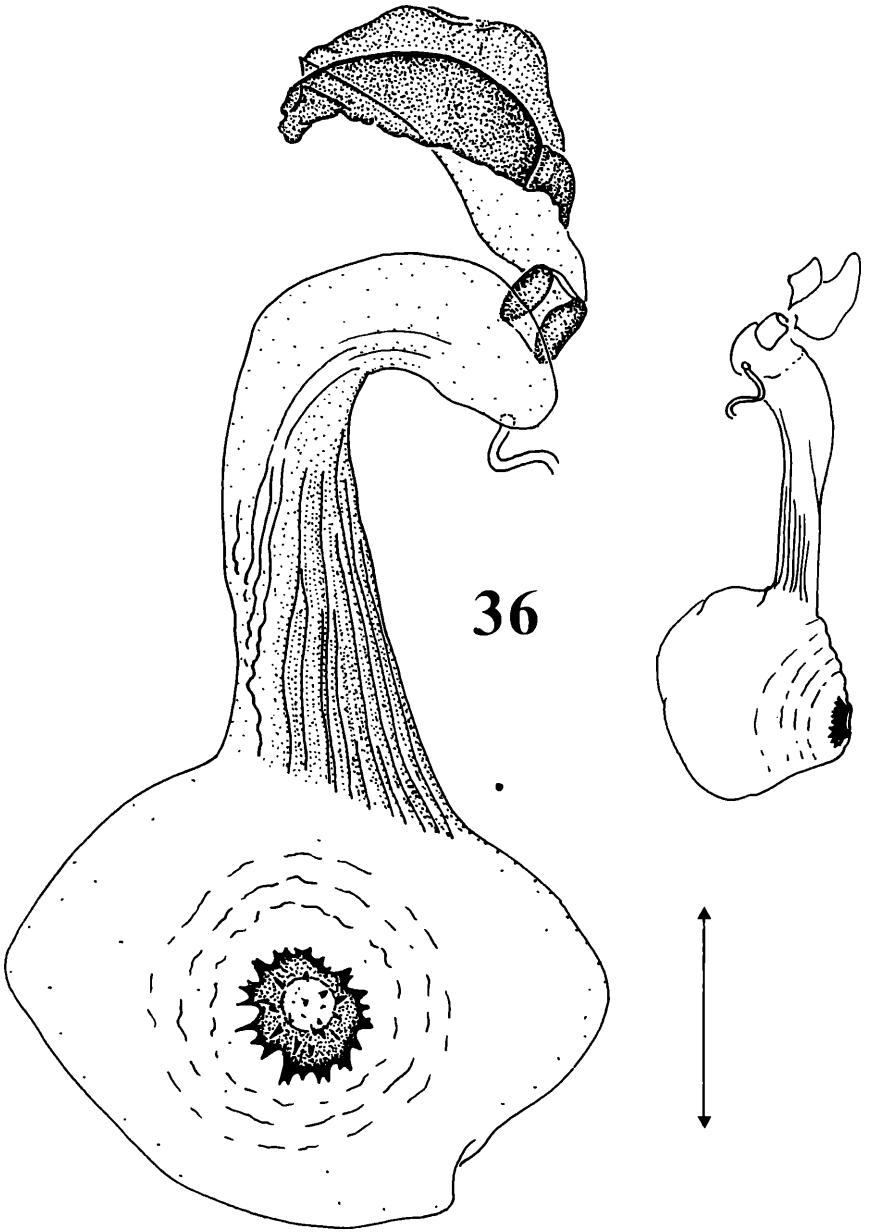

Fig. 36: *O. pallistrigaria* sp. n., paratype (E. Nepal).

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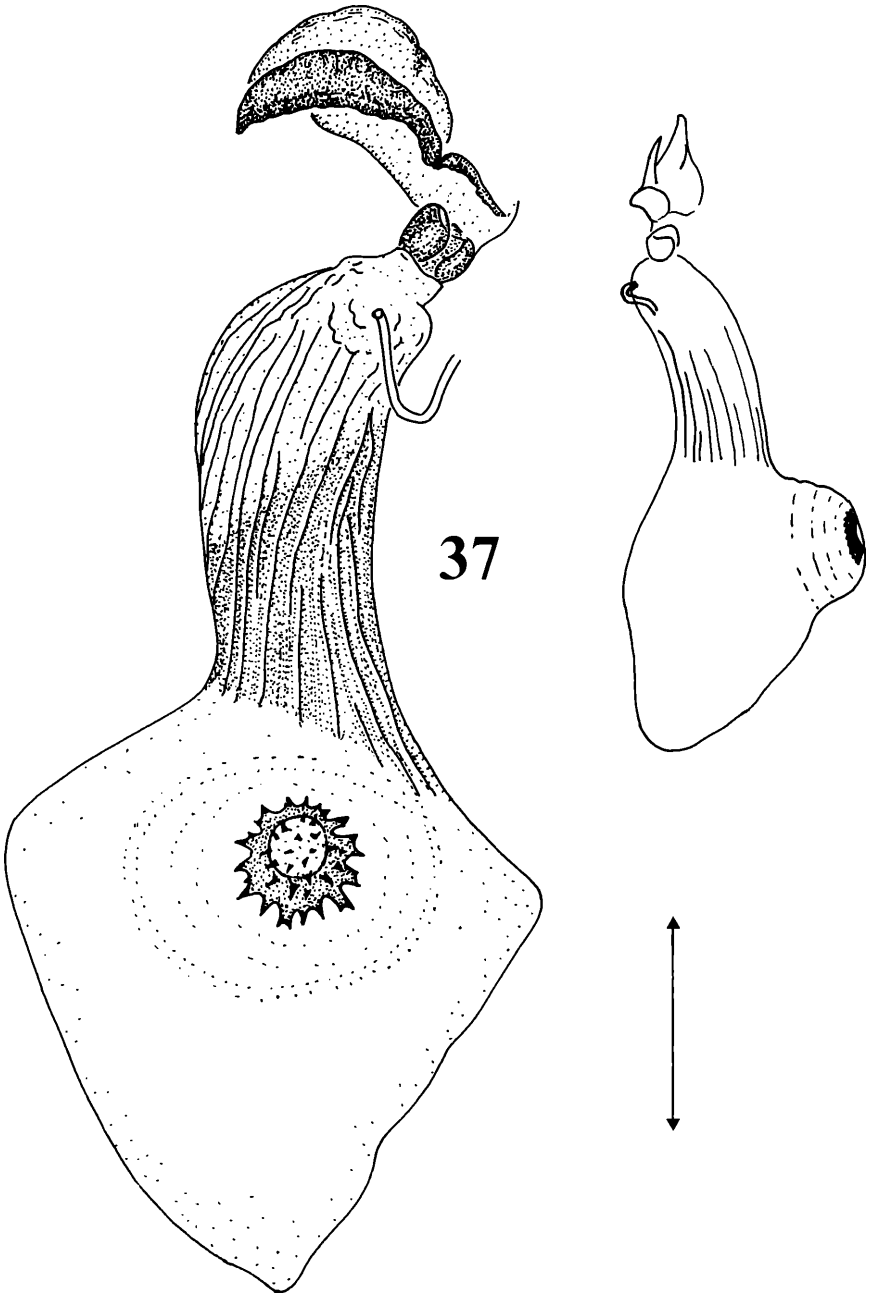

Fig. 37: *O. postflavata* sp. n., paratype (E. Nepal).

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Remarks. Ample material of this species has been found mixed among an even greater material of the following species in the collection of ZSM. According to the collecting data the flight period of *pallistrigaria* begins when that of the following species ends. This late flight period may be the main reason for its rareness in collections. It could be suspected that *pallistrigaria* represents the second generation of *postflavata* sp. n. only, but the differences in the female genitalia and the presence respective absence of a setal comb and a sterno-tympanal process in males are contradictory to that hypothesis.

Ourapteryx ***postflavata*** **sp. n.** (Figs. 17, 18, 22)

Ourapteryx multistrigaria: INOUE (1987: 270), nec WALKER 1866.

Material examined.

Holotype, ♂, "Nepal, Solu Khumbu Himal, Lukla, 2800 m, 26. VI. 1993, leg. M. HREBLAY, G. CSORBA" [ZFMK].

Paratypes. [Nepal] 12 ♂♂, 3 ♀♀, data as holotype; 1 ♂, "Nepal, Solu Khumbu Himal, 5 km E of Lukla, 3200 m, 27. vi. 1993, leg. M. HREBLAY, G. CSORBA"; 3 ♀♀, "Nepal, Ganesh Himal, Somathang, 3270 m, 15. VI. 1993, leg. M. HREBLAY, G. CSORBA"; 1 ♂, "Walunchung, 3050 m, Tamur Valley, NE. Nepal, 26. VII. 1963, T. HARUTA et al."; 1 ♀, NE. Nepal, Taplejung: Walungchung Gola, alt. 3310 m, 28. VI. 1962, T. YASUDA" [ZFMK].

1 ♂, "Nepal, Ganesh Himal, 3 km NE of Sunpati, 2330 m, 13. VI. 1993, leg. M. HREBLAY, C. CSORBA"; 5 ♂♂, 2 ♀♀, "Nepal, Solu Khumbu Himal, Lukla, 2800 m, 2. VII. 1993, leg. M. HREBLAY, G. CSORBA" [coll. SOMMERER]. 2 ♂♂, 3 ♀♀, "Nepal, Dudh-Kosi-Tal, 3500 m, 22.–23. VII. 1962, leg. G. EBERT & H. FALKNER"; 1 ♂, id., 3000 m, 27. VII. 1962; 1 ♀, Nepal, Khumbu, Khumdzung, 3900 m, 25. VII. 1962, leg. G. EBERT & H. FALKNER; 1 ♂, 1 ♀, "Nepal, Prov. Nr. 3 East, Bujan, Dudh-Kosi-Tal, 2900 m, 18.–19. VII. 1964, leg. W. DIERL"; 4 ♀♀, id., Junbesi, 2750 m, 25.–31. VII. 1964; 1 ♀, id., Sete, 2700 m, 1. VIII. 1964"; 1 ♂, "C. Nepal, Kyumnu-Kola-Tal bei Gandrung, 2360 m, 23. V. 1973, leg. DIERL & LEHMANN"; 4 ♂♂, id., 24. V. 1973; 2 ♂♂, id., 25. V. 1973; 1 ♂, "C. Nepal, Kali-Gandaki-Tal, Kalopan-Dhumpu, 2500 m, 30. V. 1973, leg. DIERL & LEHMANN"; 3 ♂♂, id., 3. VI. 1973; 3 ♂♂, id., 4. VI. 1973; 2 ♂♂, id., 5. VI. 1973; 2 ♂♂, id., 6. VI. 1973; 15 ♂♂, id., 15. VI. 1973; 3 ♂♂, "C. Nepal, Dhaulagiri SO-Seite, 3700 m, 10.–13. VI. 1973, leg. DIERL & LEHMANN" [ZSM].

1 ♂, 1 ♀, "NE. Nepal, Taplejung: Walungchung Gola, alt. 3310 m, 28. VI. 1962, T. YASUDA"; 2 ♂♂, "Tapche, 2400 m, 10. VII. 1963"; 1 ♀, "Gunsa, 3400 m, 13. VII. 1963"; 1 ♀, "Lhonak, 4550 m, 16. VII. 1963"; 4 ♂♂, "Walunchung, 3050 m, Tamur Valley, NE. Nepal, 16.–27. VII. 1963, T. HARUTA et al."; 1 ♂, "Unnamed place between Walunchung & Chowki, 2450 m, 28. VII. 1963"; 1 ♂, "Ghasa, near Nilgiri, 2000 m, 10. VI. 1969"; 2 ♂♂, "Kalbani, 2400 m, 12. VI. 1963", 1 ♂, "Rele Khola,

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2400 m, near Annapurna, 14. VI. 1969", 3 ♂♂, "Lete, 2400 m, near Nilgiri, 20. VI. 1969" [BMNH, ex coll. INOUE].
[NE. India] 1 ♂, 1 ♀, "British India, Sikkim, Lachen-Lachung, VIII. 1933" [ZFMK].

Description. Length of forewing: 29 mm (holotype ♂), 27–30 mm (♂♂), 30–33 mm (♀♀). Ground colour lemon-yellow to yellowish-white, in the latter case at least the area close to the tails of the hindwings extensively yellow. Striation variable, always less strongly developed than in *pallistrigaria,* especially the forewing costa and the hindwings less striated. Transverse lines similar to the preceding species, but less contrasting. Fringe reddish-orange, basal line inconspicuous. Wing-shape similar to the preceding species, tails of hindwings slighly longer, the shoulder on M1 more pronounced, acute, the margin beneath incurved (Fig. 22). The anterior spot larger, red, with fewer black scales around. Underside unicolorous, with the orange fringeline strongly contrasting. Thorax and vertex of head completely yellow, frons, palpi and antennae as in *pallistrigaria.* Tibia of hindlegs weakly dilated, with a small scent-pencil, but setal comb and sterno-tympanal process absent.

Male genitalia (Figs. 27, 32). Furca with the apical fourth strongly incurved, tip rounded. Plate on vesica similar to that of *pallistrigaria,* but a little smaller, the cornuti slightly longer.

Female genitalia (Figs. 37). Bursa more or less pear-shaped, with a bulbous, dorsal projection containing the signum. The latter similar to that of *pallistrigaria* in shape and size, the central opening slightly larger, but still more excentric. The ductus bursae broad, not very densely fluted and only weakly sclerotized, often broadened on left side. Lamellae inconspicuous, narrow, especially the lam. ant.

Variability. There is some variation in the ground colour. Extensively yellow specimens are found in the eastern parts of the distribution range (Fig. 18). They have the lines not much contrasting, the anterior spot of the hindwings has almost no black scales around. The thorax is also yellow. These specimens may belong to an eastern race, but the material is far too small at present to decide this question.

Diagnosis. Extensive yellow ground colour – at least at distal part of hindwing –, reddish-orange fringe line, conspicuous reddish anterior spot at the base of the hindwings and dark brown frons and palpi are distinct external features of this species. The closely related *O. pallistrigaria* sp. n. is distinguished by paler ground colour, stronger striation, especially along the costa of the forewings, and by the

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presence of a setal comb on 3rd abdominal sternite and a well developed sterno-tympanal process. *O. multistrigaria* WALKER is also similar (compare diagnosis above).

Geographical range. C. & E. Nepal, NE. India (Sikkim).

Remarks. The present new species has been confused with *O. multistrigaria* WALKER (INOUE 1987 and in litt.).

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